IN THE CLAIMS

Please amend the claims as follows:

Claims 1-4 (Canceled).

Claim 5 (Previously Presented): An interface apparatus comprising:

image processing means for picking up images of an interior of an indoor space with a

plurality of stereo cameras, and producing a distance image based on the picked up images

within a visual field and an indoor coordinate system on a camera-by-camera basis;

positional-posture and arm-pointing recognition means for extracting a positional

posture and arm pointing of a user from distance information from the plurality of stereo

cameras; and

pointing-action recognition means for determining, when arm pointing by the user has

been identified, whether or not the arm pointing is a pointing action from a pointing direction

and a motion of the arm,

wherein the positional-posture and arm-pointing recognition means for extracting arm

pointing recognizes the pointing action in such a way that: the pointing-action recognition

means divides three-dimensional distance information obtained from the plurality of stereo

cameras into levels by 20 cm according to an indoor coordinate system by a different-level

extracting method; projects a dot sequence in each level onto a two-dimensional plane and

then binarizes the dot sequence into a two-dimensional binary image; labels two-dimensional

binary images on a level-to-level basis; determines an overall center of gravity of clusters;

stacks a center of gravity determined in each two-dimensional plane in levels on object-to-

object basis again to use as a three-dimensional dot sequence; plots the center of gravity of

each level along a Z-axis, in which eight levels (an upper half of a body) from an uppermost

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level (a head) are plotted on an X-Y plane; wherein when there is a large outlier compared to the overall center of gravity, determines that an arm-pointing action has been made; and determines a direction of the body by calculating image moments of the two-dimensional binary images of the eight levels from the uppermost level, an image moment being a rectangle equivalent to the two-dimensional binary image, and determining the vertical direction of a long side of a level having an area within a specified range and in which a difference between the long side and a short side of the image moment is a largest of an acquired eight sets of data as the direction of the body; when the arm-pointing action has been recognized, the pointing-action recognition means determines a direction of the arm pointing in such a way that the pointing-action recognition means determines the direction of the arm pointing on the X-Y plane by drawing a perpendicular bisector between the overall center of gravity and the center of gravity of the two-dimensional binary image of a level of which the center of gravity is farthest from the overall center of gravity, erasing the two-dimensional binary image in a region corresponding to a body of a person to leave only an image of the arm; calculates the image moment of the two-dimensional binary image of only the arm to determine the long side, the center of gravity, a position of a distal end of the arm, and the overall center of gravity; and determines a Z-direction of the arm pointing from a stature, a height of eyes, and arm-length coefficient.

Claim 6 (Previously Presented): The interface apparatus according to Claim 5, wherein a lower limit of determination on arm pointing is set from a head height and a height corresponding to a sitting height, wherein false arm pointing which is sensed lower than the lower limit is determined not to be arm pointing.

Claim 7 (Previously Presented): The interface apparatus according to Claim 6, wherein false arm pointing which is sensed lower than the lower limit is a case in which the user stretches out his leg.

Claim 8 (Previously Presented): The interface apparatus according to Claim 5, wherein when a ratio of the long side of the image moment to the stature is less than a given value, arm pointing is not determined.

Claim 9 (Previously Presented): The interface apparatus according to Claim 8, wherein when the ratio of the long side of the image moment to the stature is less than a given value, slight arm pointing is determined.

Claim 10 (Previously Presented): The interface apparatus according to Claim 5, wherein when r1/r2 is smaller than or equal to a value set from the stature, where r1 is a distance from an average center of gravity to a distal end of the arm pointing and r2 is a distance from the average center of gravity to a base end of the arm pointing, arm pointing is not determined.

Claim 11 (Previously Presented): The interface apparatus according to Claim 10, wherein when r1/r2 is smaller than or equal to a value set from the stature, where r1 is the distance from an average center of gravity to the distal end of the arm pointing and r2 is the distance from the average center of gravity to the base end of the arm pointing, slight arm pointing is determined.

Claim 12 (Previously Presented): The interface apparatus according to Claim 5, wherein an area S of the image moment is determined from a long side L1 and a short side L2, and a upper limit is set for the area S and a lower limit is set for the long side L1, wherein, when the area S or the long side L1 is outside a limit, arm pointing is not determined.

Claim 13 (Previously Presented): The interface apparatus according to Claim 12, wherein when the area S or the long side L1 is outside the limit, both arms spread out is determined.

Claim 14 (Previously Presented): The interface apparatus according to Claim 5, wherein when a ratio of a distance between a distal end of the arm pointing and an average center of gravity to a distance between a base end of the arm pointing and the average center of gravity is greater than a set value, arm pointing is not determined.

Claim 15 (Previously Presented): The interface apparatus according to Claim 14, wherein when the ratio of the distance between the distal end of the arm pointing and the average center of gravity to the distance between the base end of the arm pointing and the average center of gravity is greater than a set value, both arms spread out is determined.

Claim 16 (Previously Presented): The interface apparatus according to Claim 5, wherein when an average center of gravity of a partner is found within a specified radius around a distal end of the user arm pointing, arm pointing is not determined.

Claim 17 (Canceled).

Claim 18 (Currently Amended): An interface apparatus comprising:

image processing means for picking up images of an interior of an indoor space with a plurality of stereo cameras, and producing a distance image based on the picked up images within a visual field and an indoor coordinate system on a camera-by-camera basis;

positional-posture and arm-pointing recognition means for extracting a positional posture and arm pointing of a user from distance information from the plurality of stereo cameras; and

pointing-action recognition means for determining, when arm pointing by the user has been identified, whether or not the arm pointing is a pointing action from a pointing direction and a motion of the arm,

wherein the positional-posture and arm-pointing recognition means for extracting arm pointing recognizes the pointing action in such a way that: the pointing-action recognition means divides three-dimensional distance information obtained from the plurality of stereo cameras into levels by 20 cm according to an indoor coordinate system by a different-level extracting method; projects a dot sequence in each level onto a two-dimensional plane and then binarizes the dot sequence into a two-dimensional binary image; labels two-dimensional binary images on a level-to-level basis; determines an overall center of gravity of clusters; stacks a center of gravity determined in each two-dimensional plane in levels on object-to-object basis again to use as a three-dimensional dot sequence; plots the center of gravity of each level along a Z-axis, in which eight levels (an upper half of a body) from an uppermost level (a head) are plotted on an X-Y plane;

wherein:

a specified area in the indoor space is registered in advance,

when a user is present in the specified area, arm pointing for the specified area is identified, and

with a periphery of a head part on a nursing bed being set as the specified area, when a user is present in the specified area, arm pointing for the specified area is identified.

Claim 19 (Previously Presented): The interface apparatus according to Claim 18, wherein, with the periphery of the head part on a nursing bed being set as the specified area, when no user is present in the specified area, whether the user is in a standing, sitting, or lying posture is determined and then arm pointing is identified for respective postures.